

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
MARINE RESOURCES REGION

REPORT FOR THE MONTH OF AUGUST 1973

Abalone tagging cruises to San Clemente, Catalina and Santa Cruz Islands highlighted the Program's activities this month. A cumulative account of abalones tagged since July 18, 1973 includes 1,870 pinks at China Cove and Pyramid Head, San Clemente Island; 588 pinks at Gull Island off Santa Cruz Island; and 1,362 greens--251 at China Cove, 77 at Pyramid Head, and 1,034 along the inside west end of Catalina Island. One more cruise has been scheduled to tag additional greens at China Point and pinks at Santa Cruz Islands.

The northern permit area reduction season opened August 1. A price of \$57.50 per ton was agreed to and anchovy meal (65% protein) was quoted at \$8 per unit or \$520 per ton.

One small purse seiner and several lampara boats are fishing in Monterey Bay and selling to Santa Cruz canners at Moss Landing or to the Salinas Tallow Works. By month's end 716 tons had been landed.

Several large southern California purse seiners (reporting their catches between Point Conception and Point Arguello) have landed 1,825 tons at Port Hueneme and 1,264 tons at San Pedro.

Preliminary figures for July indicate that 2,123 bluefin were caught by partyboat anglers. By comparison, only 91 were reported landed in July of 1972.

Wildlife Protection	3
Bottomfish	5
Shellfish	6
Abalone	7
Lobster	8
Mariculture Research and Development (Bartlett Project 4-20-4). .	8
Marine Resources Pathology.	8
Special Studies Program	9
Pelagic Fish	10
Big Game Fish	12
Sportfish	17
Sportfishing Improvement Project	18
Environmental Services	19
Inshore Fisheries Habitat Evaluation and Monitoring	21
Kelp	22
Diablo Canyon Ecological Survey (P.G.&E. Contract S1902).	22
Marine Fisheries Statistics	23
Vessels	24
Miscellaneous	24
Appendices following	

1. WILDLIFE PROTECTION

- A. Canneries: Canneries at Terminal Island and San Pedro are moderately busy processing yellowfin tuna landed from American flag vessels as well as imported tuna. Fair amounts of albacore are being taken to local canneries from Oregon.

Very little mackerel has been taken for processing during the month. Most of the local wetfish fleet were looking for bluefin tuna and during the latter part of the month, bonito, with only fair success.

The cannery at Oxnard has been reducing anchovies reportedly taken in the northern anchovy zone. A few landings of anchovies were also delivered to Terminal Island canneries for reduction. Additionally, small amounts of anchovies were landed at Moss Landing for reduction purposes.

- B. Market Fish: In southern California, white sea bass made the best showing in the past ten years. Gill net fishermen enjoyed excellent fishing from San Pedro to Point Dume. Landings of 1,000 pounds per man and 25,000 pounds per boat were not uncommon.

Landings of broadbill swordfish also improved, but have not reached the volume of the previous two years. The best fishing for broadbill appears to be in the Santa Barbara Channel area.

Halibut landings were good during the month with some trammel net fishermen landing from 600 to 1000 pounds per day.

Elsewhere in the state, dover sole landings were excellent in the Fort Bragg area and salmon success ranged from poor to good with the better fishing in the San Francisco area.

Fishing for salmon and albacore was poor in Eureka and Crescent City.

- C. Sportfishing: Yellowtail made a reappearance in the San Diego area and although the fish were not as abundant as they were earlier, fishing was generally good with 300 to 500 fish being taken daily.

Excellent catches of sand and spotted bass were made in San Diego Bay. Elsewhere in southern California waters, bonito, kelp bass, barracuda, and a scattering of halibut provided fair to good sportfishing. In the northern part of the state, rockfish and salmon provided good fishing.

- D. Weather: Weather was generally good in central and northern California. Unseasonably poor weather, however, hampered patrol activities in southern California.

- E. Law Enforcement: Due to the opening of the northern anchovy reduction season on August 1st, and the alleged catching of anchovies in the southern zone, it was necessary to maintain an extensive patrol of the waters in the southern zone particularly that area between Pt. Conception and Santa Barbara.

Aircraft and patrol vessels were used extensively in this area. One patrol vessel alone (P/B YELLOWTAIL) spent 86 hours of patrol time in an effort to insure that all anchovies taken for reduction purposes were taken north of Point Conception. We feel our efforts have greatly reduced the amount of anchovies that would have been taken illegally.

In central and northern California, increased patrol was necessary throughout the salmon fleet due to the availability of undersized salmon. Reports of over-limits of rockfish also necessitated increased efforts.

One vessel was apprehended off Crescent City for operating a drag net less than three miles from the shore. The net and fish were both seized and court action instigated.

- F. Pollution: During the reporting period, marine wardens investigated twenty-eight incidences of pollution. Merchant vessels were responsible in eleven spills which placed 133 barrels of petroleum products into state waters. The U. S. Navy was responsible for six incidents resulting in nine barrels of petroleum products being placed in state waters. Industrial sources were responsible for eleven incidents where 1,125 barrels of pollutants were lost.

There were five spills from unknown sources which discharged five barrels of contaminants. There were three successful prosecutions for Section 5650 and four cases are currently pending.

- G. Miscellaneous: Marine enforcement personnel attended two meetings relative to marine mammals. One of these being the House subcommittee on marine mammal affairs held in La Jolla, and the other a meeting called by the National Marine Fisheries Service to review the Marine Mammal Act.

Marine wardens attended approximately seven meetings of sportsmen and other related groups.

2. BOTTOMFISH

A. Fishery

Flatfish: In the Crescent City, Eureka and Fort Bragg areas overall flatfish landings were good most of the month. Dover sole remained the primary species. Increases were noted in English and petrale sole landings. Fair catches of English sole were reported in 20-40 fathoms off Patricks Point. Most petrale sole landed were taken in 60-70 fathoms south of Cape Mendocino. Good, early month, quantities of sanddabs and rex sole were taken in 20-40 fathoms off Eureka.

In the San Francisco area Dover sole was the predominant species with good catches of petrale, English, sanddabs and rex sole during most of the month.

Flatfish landings in the Monterey, Morro Bay and Santa Barbara areas were somewhat sporadic with petrale and English sole the predominant species landed.

Roundfish: Inshore rockfish, lingcod and sablefish landings increased during the month. In the Eureka area good quantities of lingcod and rockfish were taken south of Punta Gorda in 60-100 fathoms. Bocaccio, chilipepper and canary rockfish were the predominant species. The increase in sablefish landings was due to relaxed market limits. Rockfish and lingcod landings in the balance of the State have been good, with the heaviest landings occurring during the first half of the month. Bocaccio and chilipepper rockfish comprised the majority of species landed. Good catches of rockfish were reported from 80-100 fathoms off Point Sur.

B. Research

Flatfish: Routine market sampling and trawler log ticket editing were accomplished. Age determinations for 1973 samples of English, petrale and Dover sole were continued. Dover sole age data for 1972 were compiled and indicate ages 8 through 11 were predominant in the San Francisco and Fort Bragg landings.

Eight northern California tagged Dover sole and two National Marine Fisheries Service tagged sablefish were recovered.

Bottomfish Cruise Report 73-S-4 was completed.

Roundfish: Rockfish landings were sampled for size and species composition. Bocaccio and chilipepper rockfish were the predominant species in central and southern California while bocaccio, chilipepper and canary rockfish were the predominant species in northern California. Samples of lingcod were also obtained for size and sex composition.

3. SHELLFISH

A. Fishery

Crab: The season is closed in central California.

Northern California crab landings through mid-August totaled 1,153,344 pounds. Approximate landings for the month of July were only 11,000 pounds.

One dealer in Trinidad is paying a dollar a pound to the fishermen. Price per pound in other areas remains at eighty cents.

Shrimp: Shrimp landings in Area A totaled 950,000 pounds through mid-month; only 200,000 pounds were landed in the first three weeks of August. Some bad weather and difficulty in locating good concentrations has held effort down. Average catch per hour declined steadily throughout the month; average rate for the season to date is 575 pounds. By August 20, all but two vessels had gone to Port Orford, Oregon where fishing has been consistently good all summer.

Price across the docks increased from 18 to 20 cents per pound on August 5.

No ocean shrimp effort was reported in Areas B-1 (Fort Bragg) and C (Morro Bay) during August. Area B-2 (Bodega Bay) is closed.

Bay shrimp trawlers are making good catches of shrimp off Mare Island rock wall and Point Pinole.

Oysters: Coast Oyster Company has been opening oysters twice weekly and produced 2,300 gallons this month. Most oysters harvested were taken from rocks.

B. Research

Crab: Sampling for 1973 year class crabs was conducted in several locations in San Francisco and San Pablo Bays during August. The sampling gear used was ring nets and a 16 foot semi-balloon trawl net. The 695 crabs caught had a size range of 19-90 mm with an average size of 51.7 mm.

Time was also spent preparing for the September crab cruise off central California.

In northern California time was spent this month preparing sampling gear for the October crab cruise. A davit and power head were also installed on the 23 foot Thunderbird, PANDALUS. This gear was tested and used successfully in trawling and trapping operations for crab in Humboldt Bay and nearby ocean waters.

Trawling in north and south Humboldt Bay revealed that most 1972 year class market crabs have migrated from the bay. Trawling and trapping in the ocean, north and south of the Humboldt jetties, showed fair numbers of 1972 year class crabs. Other year classes were poorly represented but more extensive sampling will be needed to verify this.

Limited trapping in Crescent City harbor revealed far fewer numbers of juvenile crabs than were caught in July.

Shrimp: Age composition of market samples for the first three weeks of August ranged from 36 to 54% I's and 42 to 60% II's. Headroe were noted on 39% of the females during the third week.

An average of 1.2 1973 year class shrimp was found in the 146 Pacific hake stomachs examined in July and August. Last year hake stomachs averaged 0.05 juvenile shrimp apiece from July through October.

Oysters: Experimental populations of oysters were monitored for mortality. As through the entire summer, mortality has been negligible among all oyster populations in Humboldt Bay.

4. ABALONE

Abalone tagging cruises to San Clemente, Catalina and Santa Cruz Islands highlighted the program's activities this month. A cumulative account of abalones tagged since July 18, 1973, includes 1,870 pinks at China Cove and Pyramid Head, San Clemente Island; 588 pinks at Gull Island off Santa Cruz Island; and 1,362 greens, 251 at China Cove, 77 at Pyramid Head, and 1,034 along the inside west end of Catalina Island. One more cruise has been scheduled to tag additional greens at China Point and pinks at Santa Cruz Island.

Fish predation on pinks continued to inflict a significant loss of replaced abalones. To reduce tagging mortality, we stopped replanting most of the cut abalones; however, at Gull Island 67 of the 588 pinks (11.4%) were lost to predation by sheephead. Large numbers of sheephead and smaller carnivorous fishes swarmed about divers during planting operations. To reduce predation, abalones were either planted deep in protective crevices or were covered by boulders until firmly reattached. However, large sheephead were continuously successful at detaching abalones. Similar mortalities occurred at the San Clemente Island pink abalone tagging sites due to bat ray and sheephead predation.

Routine maintenance on the R/V MOLLUSK included sanding, fiberglass coating, painting, reinstallation of hookah diving gear, and mounting a stern roller to board our skiff. Several short runs in Estero Bay exposed "bugs" in the new 330 Chrysler engine including condenser, alternator, carburation and over-heating heat-riser problems.

5. LOBSTER

The Fish and Game Commission ruled this month that commercial lobster fishermen must submit daily logs of their fishing activities. A newsletter to inform lobster fishermen of the new regulation and explain the reasons for it was prepared and mailed to last year's permit holders. The new log books should be received from the State Printing Office during the first week of September.

Twenty-five lobster traps were prepared and field studies begun. Trapping was unsuccessful at Abalone Cove and within L.A. Harbor. At the isthmus on Catalina, 170 lobsters were taken in two nights of trapping. Forty-seven percent were of legal size.

Analysis of the lobster fishing in past seasons and planning for field work is continuing.

6. MARICULTURE RESEARCH AND DEVELOPMENT (Bartlett Project 4-20-4)

The majority of the month was devoted to research on the red abalone. Abalone project personnel supplied the laboratory with red abalone from the Shell Beach area on August 1. Upper temperature tolerance limits of adults, acclimation and its relationship to upper temperature tolerances, and methods of achieving reliable spawnings of viable eggs were investigated.

Hanging cultures of Pacific oysters spawned in the laboratory and planted in Drakes Estero on April 12, 1972 have experienced a 46% mortality within the last 3 months. Cultures in Humboldt Bay and Tomales Bay and bottom cultures in Drakes Estero show no significant mortalities. The average size of oysters planted in March and April of 1972 now exceed 130 mm (5 inches). The average size of oysters planted in September of 1972 exceed 64 mm (2.5 inches).

Much of the month was spent on two manuscripts.

On August 15 lobsters being held at 15°C began releasing the third group of phyllosome larvae this year.

Four groups toured the laboratory this month.

James MacDowell, our fish culturist, terminated on August 30.

7. MARINE RESOURCES PATHOLOGY

The processing of fish samples taken for pathological examination during late June, July and August was completed during August. The sample from Monterey Bay containing 180 fish had no abnormalities; Pacific sanddabs dominated the catch.

Three samples were taken from San Pablo Bay. One sample from near Point San Rafael contained 1,500 fish with English sole and white croakers predominating, no abnormalities were observed. Two samples taken near Point Pinole contained 320 fish with English sole and Pacific sanddabs predominating. Of 32 brown smoothhound sharks collected, 21 had heavy infections of parasitic copepods at various locations on their bodies, no other abnormalities were observed on any species. One sample of 102 fish was taken from south San Francisco. The dominant species were shiner perch and anchovies, no abnormalities were noted.

Five samples were taken from the Gulf of the Farallones near the area of the proposed San Francisco sewer outfall. Pacific herring dominated the catch which contained 4,898 fish. No abnormalities were observed.

Two samples containing 714 fish were collected approximately two miles west of the Humboldt Bay entrance; whitebait smelt dominated the catch. Abnormalities were noted only among the rex sole with 1.4% having neoplastic-like lesions.

Two samples from north Humboldt contained 1,847 fish with English sole comprising the majority of the catch. Neoplastic-like lesions were noted among 0.3% of the English sole. Three samples from north Humboldt Bay yielded 582 with English sole again predominating. The incidence of abnormalities was higher with 4.5% of the English sole having neoplastic-like lesions.

Adult Pacific oysters originating from British Columbia, Canada and to be used by Pacific Mariculture, Inc. as spawning stock were examined microscopically. No potentially pathogenic organisms were noted.

8. SPECIAL STUDIES PROGRAM

A sea otter census flight scheduled for August 7 and 8 has been postponed indefinitely due to prevailing low fog conditions during the month.

Most of the month was spent on the sea otter report, which is progressing satisfactorily.

Ames spent some time making arrangements for permits for use of sea otter carcass materials at several institutions which have requested these materials.

Wild presented a series of lectures on marine mammals at the National Wildlife Federation Summit Conference at Asilomar early in the month.

9. PELAGIC FISH

A. Fishery

<u>Landings in tons</u>		<u>January 1 - August 31</u>			
<u>Species</u>	<u>1973*</u>	<u>1972</u>	<u>1973*</u>	<u>1972</u>	<u>10 yr. mean 1962-1971</u>
Anchovy	3,805	1,058	45,156	34,723	13,256
Mackerel, jack	724	4,958	6,964	16,931	18,352
Mackerel, Pacific	--	0	--	26	3,445
Sardines	1	5	54	116	1,154
Squid	<u>17</u>	<u>298</u>	<u>4,126</u>	<u>9,847</u>	<u>8,032</u>
TOTAL	4,547	6,319	56,300	61,643	44,239

*Estimated. Accumulated landings are revised monthly.

B. Fishery Research Monitoring

Anchovy: The northern permit area reduction season opened August 1st. A price of \$57.50 per ton was agreed to and anchovy meal (65% protein) was quoted at \$8.00 per unit or \$520.00 per ton.

One small purse seiner and several lampara boats are fishing in Monterey Bay and selling to Santa Cruz canners at Moss Landing or to the Salinas Tallow Works. By months end 716 tons had been landed.

Several large southern California purse seiners (reporting their catches between Point Conception and Point Arguello) have landed 1,825 tons at Port Hueneme and 1,264 tons at San Pedro.

Jack Mackerel: All caught at Cortes Bank early in the month.

Live Bait: Live bait fishing during the month of August has been characterized by inconsistency in most areas. The behavior of anchovies has been unpredictable resulting in many additional hours of scouting time being spent by bait fishermen in order to locate bait. San Diego and Newport fishermen have especially had difficulty the past couple of weeks in meeting their commitments. Bait haulers in Santa Monica Bay, where anchovies have been consistently available for most of the summer, have also found bait more difficult to obtain. Small fish continue to dominate all live bait catches as they have for most of the summer. Only Los Angeles Harbor and the Oxnard-Ventura area have enjoyed consistent fishing during the past month.

C. Biological Studies

Jack Mackerel Tagging Program: A total of 2,021 jack mackerel and 1,124 Pacific mackerel were tagged in August. The majority of the jack mackerel were tagged aboard the purse seiner ASTRONAUT at

Cortes Bank whereas most of the Pacific mackerel were caught at La Jolla and transported to and released at San Clemente Island aboard the R/V ALASKA. There have been 4 jack mackerel and 7 Pacific mackerel tag returns this month. All but one of these returns have shown little or no movement over short periods of time. One Pacific mackerel, however, moved from La Jolla to San Pedro in 16 days time.

D. Fisheries Resources Sea Survey (M63R)

A combination night light and acoustic survey of sardine, anchovy, and mackerel populations off southern California was begun August 10. Originally, the survey was to include work in Mexican waters, but a request for a permit from the Mexican government was denied. During the first week of the cruise, 822 Pacific mackerel, 264 jack mackerel, and 64 barracuda were tagged and released. Attempts to obtain live mackerel for tagging from a purse seiner were unsuccessful, as no fish were captured. Thus far, no sardines have been found and acoustic work has failed to locate any major anchovy school concentrations.

Sonar and echo sounding equipment will be calibrated during the final days of the current cruise and results will be compared with previous calibrations.

Data from the last two cruises were edited and a preliminary print out was received and corrected.

Progress was made in attempts to obtain a voltage regulator through an excess Government property agency.

The Sea Survey Bulletin has been edited and is now in preparation for printing.

Sea Survey Data Analysis: Jack mackerel otoliths for 1959-60 through 1962-63 seasons were aged. A manuscript describing the southern California jack mackerel fishery for 1957-58 through 1961-62 is now being typed.

Effects of biased parameter estimates and of bad assumptions in use of the Murphy method were investigated by simulation studies. Population sizes are being estimated for the Pacific mackerel for seasons since 1930 by means of a modification of the Murphy method.

Examination of larval data, and past population and mortality estimates for the Pacific sardine continued in the quest for a method of estimating sardine population size under conditions of reduced biomass.

10. BIG GAME FISH

A. Albacore - Research

Life History: Age and growth--385 length measurements and 67 scale samples were obtained from albacore landed in California. In addition, 1,000 length measurements were taken from fish trucked here from Oregon and Washington.

Population Dynamics: As most of the fishing continued to be done north of the state, only 31 logs were collected this month. Work was continued in the modification of computer program ALBCAT, to analyze information from the new log books.

Fisheries

Sport: The first and last weeks of the month were punctuated with excellent catches off Morro Bay. Although catches as high as 6 fish per angler were recorded, fishing was very poor much of the month; this was at least partly due to inclement weather.

Commercial: Although a few fish have been spotted off the 213 spot, Monterey, Bodega Bay, and Eureka most fishing has been restricted to an area about 65 miles off Morro Bay. North of California excellent fishing occurred from Cape Blanco to Grey's Harbor and centered off the Columbia River. Also, good catches were reported west and north of Vancouver Island. Coastwide, however, poor weather has limited the amount of time spent on the fishing grounds.

The commercial price to fishermen was settled this month at \$830 per ton.

B. Bluefin Tuna - Research

Life History: Age and growth--Six weight-length-scale samples were obtained from bluefin landed at the Terminal Island canneries. These fish ranged from 9 to 40 pounds. Bluefin heavier than 100 pounds were observed at the fresh fish markets in August.

Work continued on the bluefin age and growth manuscript.

Fisheries

Sport: Fair to good catches continued to be reported by San Diego partyboats in August. Preliminary figures for July indicate that 2,123 bluefin were caught by partyboat anglers. By comparison, only 91 were reported landed in July of 1972.

Commercial: Over 780 tons of bluefin were caught and landed during the month of August by local and high seas purse seiners. Preliminary figures indicate that landings of bluefin at the fresh fish markets totaled 20 tons compared with 14 tons for June and 14 tons for July.

C. Pacific Bonito - Research

Population Structure: A total of 84 eye lenses was collected this month for population analysis by electrophoresis.

Life History: Age and growth--Two weight-length-otolith samples were collected from bonito landed at the Terminal Island canneries.

Migration--In August, 52 bonito were tagged and released from party-boats in the area from the Coronados Is. to Rocky Point. Thirty-three tags were returned this month.

The KELP BASS returned from a 4-day trip in southern California waters. Project personnel tagged 28 bonito, ranging in size from 34 to 52 cm.

Analysis of the 1968-1973 bonito tagging results is continuing through the use of the TAGRET III and BGC4 computer programs.

Resource Management: Partyboat sampling--In August, 217 bonito were measured. They ranged in size from 42 to 68 cm. Preliminary results indicate that anglers caught three age groups (I-III) this month, with one year old bonito providing 96 percent of the catch. Fishing effort was 8% greater in July than in June, while the catch (87,784) was 34% greater in July than in June (65,568). The abundance index (1.02) for July indicates that anglers found bonito more abundant than during June when the index was only 0.87.

<u>Age group</u>	<u>AUGUST</u>	<u>% age composition</u>	<u>JULY</u>	<u>Abundance index</u>
	<u>% age composition</u>		<u>Estimated catch (nos)</u>	
0	0	0	0	0
I	96	100	87,784	1.02
II	3	0	0	0
III	1	0	0	0
			<u>87,784</u>	<u>1.02</u>

Market Sampling--One length-frequency sample was taken from the fresh fish markets in San Pedro. It consisted of fish in the 3+ age group.

Fisheries

Sport: Catches continued good in August.

Commercial: Close to 1,000 tons of bonito (6-15 lbs) caught in Mexican and local waters were sold for export and up to 300 tons of small bonito (2 to 3 lbs) caught by the local fleet were used for pet food. Three age-weight-length and eye lens samples were taken of these fish.

D. Billfishes - Research

Population Structure: Three sets of eye lenses were collected during a five day swordfish trip. Preliminary analysis by electrophoresis has been completed and comparison with last year's specimens will be made in the near future.

Life History: Trips on commercial fishing boats were made during the last week of July and the third week of August, to obtain information about swordfish sex ratios, maturity, lengths and weights, and food habits. Whole weights were determined by an electronic

load cell which gives better results than the spring balances used on previous trips. Since swordfish are headed and gutted before they are landed, measurements on whole fish must be made at sea. Anchovies and squid were of prime importance in the diet of swordfish on the local grounds, although ribbonfish were noted in one stomach. All swordfish appeared to be females; their ovaries were in a non-spawning condition.

Fisheries

Sport: Five broadbill were landed by sportfishermen during August, bringing the season total to 7. Marlin were seen in greater numbers on the fishing grounds during the latter part of August than during July.

Commercial: Fishing occurred during all but three days in August; most of the time the weather was foggy and the sea was relatively flat and glassy, providing ideal conditions for sighting swordfish. The 40+ boats in the fleet may have landed at least 10 fish each with the high boats landing 100 or more. At \$1.25 per pound, and an average carcass weighing 250 pounds, fishermen now are enjoying a better return than they have for the past two years.

Resource Management: Market sampling--Broadbill swordfish landed at the fresh fish markets were sampled in August. The 47 fish measured ranged from 1300-2100 mm in carcass length and 115-420 pounds in weight.

<u>Weight group</u>	<u>AUGUST</u>	<u>JULY (43)</u>
	<u>% weight composition</u>	<u>% weight composition</u>
< 100 lbs	0	5
100-150	4.	5
151-200	17	23
201-250	28	16
251-300	19.	28
> 300	32	23

During August fishermen caught somewhat larger fish than in July, perhaps due to a shift in the fishing grounds from Santa Barbara to the Catalina-San Clemente Island area.

E. California Barracuda - Research

Life History: Migration--A total of 220 barracuda was tagged and released aboard Department research vessels and southern California partyboats in August.

Eleven tagged fish were recovered by anglers in August; most had traveled only short distances. Six moved north and five moved south of the release point.

Resource Management: Partyboat sampling--Samplers aboard partyboats during August measured 152 barracuda. These ranged in length from 45 to 84 centimeters (average = 65 cm) and II to VII+ years in age.

Preliminary results indicate that age groups II through V provided nearly 95 percent of the partyboat catch. Also, age II and V fish provided a larger percent of the catch in August than in July, while age III and IV fish provided a smaller percent of the catch in August than in July.

Figures for August are incomplete; however, the fishing effort in July was 3 percent lower than during June, yet anglers caught 437 percent more barracuda. In addition the abundance index for July (3.1) indicates that partyboat anglers found barracuda more abundant then, than they did during June when the abundance was only 0.6.

About 76 percent of the barracuda caught aboard partyboats during August were shorter than the legal limit and were released. In July about 89 percent were released; in June 83 percent, and in May 97 percent were released.

<u>AUGUST</u>		<u>JULY (461)</u>		
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>	<u>Calculated catch*</u>	<u>Abundance index</u>
I	0	1	2,559	0.031
II	14	9	23,032	0.283
III	21	28	71,655	0.880
IV	44	46	117,720	1.445
V	16	12	30,710	0.377
VI	3	3	7,677	0.094
VII+	2	1	2,559	0.031
		100	255,912	3.141

* includes released fish

Market sampling--No samples of barracuda were obtained at the fresh fish markets. No commercially caught barracuda have been reported landed for the month of August; local gill netters directed their efforts at white seabass.

<u>AUGUST</u>		<u>JULY (40)</u>
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>
I	-	0
II	-	0
III	-	0
IV	-	10
V	-	41
VI	-	28
VII+	-	21
		100

Fisheries

Sport: Barracuda action remained moderate to good during August with the best catches reported from the San Diego area.

Commercial: No action.

F. White Seabass - Research

Life History: Migration--Two small white seabass were tagged this month.

Sex Ratio--Of 101 fish sampled, 41% were males and 59% females.

Resource Management: Partyboat sampling--White seabass caught by the partyboat anglers were sampled in August. The 8+ fish measured ranged 25 to 58 cm in length and I to IV years in age.

Figures for August are incomplete; however, the fishing effort in July was almost the same as during June, and anglers caught 120 percent more white seabass. In addition, the abundance index of 0.01 for July indicates that partyboat anglers found white seabass more abundant then, than during June.

<u>AUGUST</u>		<u>JULY (6)</u>
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>
0	-	-
I	25	-
II	38	33
III	25	17
IV	12	17
V	-	33

Market sampling--White seabass landed at the fresh fish markets were sampled in August. The 85+ fish measured ranged 98 to 136 cm in length and VIII to XIII+ years in age.

Preliminary results indicate that age groups X and XI provided over 50 percent of the catch. By comparison these age groups provided about 44 percent of the July catch.

<u>AUGUST</u>		<u>JULY (140)</u>
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>
VII	-	6
VIII	6	12
IX	16	14
X	25	27
XI	26	17
XII	9	7
XIII	18	17

Fisheries

Sport: The sportcatch tapered off this month.

Commercial: The majority of the seabass landed were caught off southern California.

G. California Yellowtail - Research

Resource Management: Partyboat sampling--Yellowtail caught by the partyboat anglers were sampled in August. The 237+ fish measured ranged 47 to 100 cm in length and 0 to VIII years in age.

Preliminary results indicate that anglers set their hooks in 9 age groups of yellowtail this month, with groups I through IV providing over 85 percent of the catch. By comparison these age groups contributed 41 percent in July and over 90 percent in June.

Figures for August are incomplete; however, the fishing effort in July was 8 percent higher than during June, and anglers caught 93 percent fewer yellowtail. In addition, the abundance index for July (0.05) indicates that anglers found yellowtail less abundant then, than they did during June.

Age group	AUGUST		JULY (100)	
	% age composition	% age composition	Estimated catch (nos)	Abundance index
0	0	1	39	0.0005
I	23	9	352	0.004
II	24	11	431	0.005
III	27	14	548	0.007
IV	10	7	274	0.003
V	8	24	940	0.012
VI	6	21	822	0.01
VII	1	6	235	0.003
VIII	1	1	39	0.0005
IX	-	-	-	-
X	-	1	39	0.0005
XI	-	2	78	0.001
XII+	-	3	118	0.001

Market sampling--No yellowtail were measured at the fresh fish markets this month.

11. SPORTFISH

A. Partyboat

The preliminary report of key species, partyboat catch and effort through July 1973 compares with 1972 as follows:

<u>Through July</u>	<u>1973</u>	<u>1972</u>	<u>Preliminary catch July 1973 only</u>
Rockfish	1,826,147	1,859,048	344,776
Kelp & sand bass	400,110	422,401	170,068
Pacific bonito	267,495	26,988	87,784
Pacific mackerel	110,076	136,718	48,674
Halfmoon	126,892	92,658	45,348
Barracuda	45,350	21,744	29,517
Salmon	75,727	102,911	23,934
Yellowtail	118,325	24,424	3,915
Striped bass	3,501	5,760	1,582
Calif. halibut	5,959	5,113	1,262
Sturgeon	363	664	32
Total fish	3,162,375	2,915,872	808,846
Total anglers	465,663	429,128	116,500

B. Central California Marine Sportfish Survey

Life history studies of kelp greenling and rock greenling are continuing. Aging studies are nearing completion with development of otolith reading technique. Meristic counts were made on 35 specimens from a skindiving meet at Van Damme State Beach. Stomachs and gonads were also collected.

A skindiving meet was attended on July 31 at Van Damme State Beach. A large series of kelp greenling and rock greenling were brought back to Monterey for processing for weight-length, maturity, food, and aging studies.

The skindiving analysis has been completed and will soon be submitted for publication.

Requests for project information on sportfishing at Santa Cruz Harbor and in Moss Landing were supplied to Department environmental biologists and to the U.S. Corps of Engineers.

Project personnel attended a lecture on giant kelp at Monterey Peninsula College sponsored by the Friends of the Sea Otter on August 25.

Project personnel met at Menlo Park with Richard Heimann, John Geibel, and Nancy Ferguson on statistical analysis of project data.

12. SPORTFISHING IMPROVEMENT PROJECT

Fishing Maps: In the hands of the State Printer.

Sportcatch Assessment: Seventeen sampling days were spent at Orange County shore-sampling units including piers, breakwaters, bays, boat landings and beaches. A total of 894 parties of fishermen was interviewed, their catch was composed of 46 species. The greatest number of anglers fished from piers, although their catches were not as imposing as in other units.

General: Field reports show that upper Newport Bay, and the lagoons of the Santa Margarita and San Luis Rey Rivers, and San Juan Creek lagoon offer low salinities for the introduction of juvenile striped bass. Two manuscripts "How to Prepare Marine Fish for Cooking" and "Length-Weight Charts of Southern California Game Fish" are well along. Several tagged spotted sand bass were recovered, all from January 1973 releases. None of the recovered fish moved from the Newport Bay release point; growth averaged about one-half inch. The red drum (redfish, channel bass) will be the subject of a seminar mid-October. The objective is to review Department guidelines governing the introduction of non-native marine species, the red drum will provide a practical test.

13. ENVIRONMENTAL SERVICES - Southern California

A. Water Quality and Pollution Control Activities

1. Regional Board Activities

- a. A meeting for review of the City of San Francisco's pre-discharge crab and fisheries survey was conducted at Menlo Park. Study is essentially on course.
 - b. A meeting was held with PG&E at their Diablo Canyon site regarding clean up of the intake cove. Preliminary agreements were reached on timing of clean up and allowable settleable solid and turbidity levels.
 - c. State Board review of the San Diego Regional Board's recommendations for granting of an exception from the Thermal Plan for San Diego Gas and Electric Company's Encina Power Plant Unit 5 was requested.
 - d. Input was provided to Basin planning contractors for the Santa Barbara and San Diego areas.
 - e. Assistance was provided to the State Attorney General's Office regarding prosecution proceedings against the South San Luis Obispo Sanitation District.
 - f. Meetings of the Central Coast and San Diego Regional Boards were attended in addition to a State Board meeting in Los Angeles.
2. Bioassay Laboratory - Effort continued in preparing materials for the filing of necessary permits with the Central Coast Regional Water Quality Control Board and the South Central Coastal Zone Conservation Commission.
 3. Pollution Control Activities - Public health aspects of clamming in Colorado Lagoon were discussed with representatives of the State Health Department.
 4. Miscellaneous - Consultants for Aliso Water Management Agency detailed their current alternative plans for wastewater management in the Dana Point area and discussed their ocean current and biological study results to date.

B. Water Development Activities

1. Army Corps of Engineers

- a. Public Notice reviews - Twenty three proposals were acted upon (San Francisco District 14, Los Angeles District 9). Significant action included the following: a request for removal or mitigation for a third illegal fill in the Tijuana River estuary; request for removal of an illegal fill by Olson Terminal, Inc. in Humboldt Bay.

b. Navigation and Maintenance Projects

- (1) A statement was presented at a public hearing in National City objecting to the Corps San Diego Harbor Improvement Project proposal for disposal of spoil at the "D" Street and Silver Strand bayside fill sites.
 - (2) Review of the Pt. Hueneme project draft design prompted a request to the Corps that effective measures to correct water quality problems will be implemented as the need occurs.
 - (3) Crescent City Harbor Report review determined that various proposals present water and sediment quality problems along with those of dredge spoil disposal.
2. Coastal Zone Commission - The State Commission's outline for the marine element of their planning activities was reviewed and comments forwarded. Fish landing data for the Eureka area was forwarded to the North Coastal Commission. A marine element workshop of the South Coast Commission was attended. Comments regarding San Onofre units 2 and 3 were presented at a public hearing of the San Diego Commission at the Commission staff's request.
 3. State Lands Commission - Minor modifications of an EIR were suggested regarding the conversion of the beached vessel "La Jenelle" into a fishing pier.

ENVIRONMENTAL SERVICES - Northern California

A. Water Quality and Pollution Activities

Waste Discharge Requirements: None were received for review.

Report Review: The third progress report on the oceanographic survey results for the Monterey Peninsula Water Pollution Control Agency was reviewed prior to a meeting with the agency on August 15, 1973.

Meeting Attendance: Monthly meeting of the Central Coast Regional Board was attended.

B. Water Development Activities

Army Corps of Engineers: Eleven new public notices were reviewed; ten required no preparation of comments. Denial of one permit was recommended for an after the fact unauthorized fill in Humboldt Bay by Olsen Terminal, Inc. A request to the Corps to require removal of the fill was also made.

In addition, public notice 73-85 regarding dredging and spoil disposal at Moss Landing was reviewed and comments were prepared concurring with the disposal site. The recommendations were based on new information from Moss Landing Marine Laboratories.

Corps reports on beach erosion central studies for Pacifica and consideration for navigational improvement for Crescent City Harbor were reviewed. Comments were prepared regarding the Crescent City report.

Coastal Zone Commission: Information regarding the significance of Eureka area fisheries landings was provided to the North Coast Region staff as requested.

Miscellaneous Items: An application for a Federal NPDES and State waste discharge permit for the Granite Canyon Marine Culture and proposed Bioassay Laboratories was prepared for the Central Coast Regional Water Quality Central Board. In addition, an application was prepared for submission to the Central Coast Coastal Commission for approval to construct the Bioassay Laboratory.

14. INSHORE FISHERIES HABITAT EVALUATION AND MONITORING

Efforts toward completion of our Regional Water Quality Control Board contract studies continued. These contracts should be completed next month.

Fifteen man days were devoted to abalone tagging efforts at San Clemente, Santa Cruz and Santa Catalina Islands.

ENVIRONMENTAL AND BEHAVIORAL STUDIES OF COASTAL SPORT FISHES

Project personnel visited man-made reefs in Orange County and Ventura County. The marking buoys over the Huntington Beach rock reefs have been changed recently and it took much searching to find the reefs.

The 16 tire reef units sunk last month near Ventura Marina are covered with hydroids and small barnacles. We counted about 150 brown rockfish, some black surfperch, and a kelp bass. We don't know where the brown rockfish, some of which were 17 inches long, might have emigrated from. The surrounding bottom is sandy mud for at least a mile.

On the way to and from Ventura, we continued a Pismo clam count at Zuma Beach. The 100 clams collected last month have been aged.

Between Pt. Fermin and Pt. Vicente we saw many bat rays all about 12 inches in wing span swimming alone or in groups of up to 100. At one point they were swimming down coast, at another upcoast.

Three days were spent at Catalina Island collecting sheephead and conducting scuba certification.

The project attended a radio training session.

15. KELP - DJ F-27-D

A total of 1,367 *Macrocystis* plants has been transplanted to the Abalone Cove study area since January 1973. Although fish grazing is evident, plants continue to look healthy as much new growth is appearing to replace those fronds lost due to natural deterioration.

Five days were spent in study area maintenance and substrate preparation.

A total of 175 plants was transplanted to Abalone Cove aboard the R/V KELP BASS during the last week of August.

Wilson and Haaker attended a U. S. Diver's equipment repair course on August 20-22 and are now certified to inspect, maintain and repair diving equipment manufactured by the U. S. Diver's Company. This training should save the project considerable time and expense in the future as well as minimizing the danger of equipment malfunction.

Two days were spent in maintenance of the ANCHOVY.

16. DIABLO CANYON ECOLOGICAL SURVEY (P.G.&E. Contract S1902)

Work continued during the month finalizing our data for the Point Arena Project Report. On August 16, Gotshall met with P.G.&E. personnel to discuss the proper handling of the release of large amounts of silt that has built up behind a temporary cofferdam at the electric company's Diablo Canyon Power Plant site. On the 17th, Gotshall and Laurent met with P.G.&E. biologists Adams, Warrick and Price to discuss the report and proposed studies and sampling techniques for the Diablo Canyon Power Plant survey.

17. MARINE FISHERIES STATISTICS

A. Source Documents

The following source documents were edited: July cannery receipts, and marine sport catch logs.

Editing is in progress on the following source documents: June market receipts, July bait receipts, August cannery, marine sport catch and bait receipts.

The July marine sport catch letter was prepared and mailed. Delinquent partyboat lists were prepared and sent to Anadromous Fish Investigations. A list of partyboat owners and their addresses was prepared for Ron Rogers of Anadromous Fisheries.

B. Machine Data Processing

Routine reports completed were: May statistical report, July processors report and marine sport catch series. The 1972 salmon port landing report was run. Card decks were made up for sea survey cruise 73-A-4 and ocean salmon sampling.

C. Licenses and Registrations

Master list changes were sent to Sacramento headquarters and the field offices.

Lists of unregistered vessels making deliveries were prepared and sent to enforcement personnel.

Comparisons for sales of licenses, boat registrations, and partyboat permits on August 1, 1973 and September 1, 1972 (one month later in the year) are as follows:

	Number of sales as of August 1, 1973	Number of Sales as of September 1, 1972
Fishing Licenses	9,332	9,289
Boat Registrations	4,900	4,706
Partyboat Permits	437	435

D. Information

May statistical and July marine sport catch reports were decoded and distributed. The July tuna letter and May cumulative catch report were mailed. Salmon landing reports by port and area for 1972 were decoded and sent to the Anadromous Fish Branch.

Special requests for sport and commercial catch data for four statistical blocks in the San Diego area were sent to Dr. Wheeler North. Commercial catch data for five statistical blocks were prepared for Dames and Moore of Westwood, California.

E. Fishery Surveillance

Twenty-seven dealers were visited for clarification of market receipts. A reassessment of our conversion factor on ghost shrimp resulted in a doubling of the figure. A meeting with Dr. Schlessor of U.C. Davis at the Bodega Bay Marine Laboratory covered many aspects of lobster biology and physiology.

One week was spent on diving assignment assisting the abalone project.

F. NMFS Commercial Fisheries Survey

Compilation of comments, criticisms and suggestions from the questionnaire survey was completed.

Mailing labels for this year's survey are being prepared and printing orders are being placed.

18. VESSELS

ALASKA: From the 10th through the 31st the vessel conducted a sardine and mackerel survey off southern California.

Balance of the month the crew was on vacation.

N. B. SCOFIELD: The vessel was secured the entire month for vacation and CTO.

KELP BASS: From the 7th through the 11th the vessel was engaged in an abalone survey off San Clemente Island.

From the 14th through the 17th the vessel was engaged in a big game tagging off the coast of southern California.

From the 27th through the 31st the vessel engaged in a kelp transplant from Catalina to Palos Verdes Peninsula.

19. MISCELLANEOUS

A. Meetings, Talks and Visitors

August 1-4 -Hardwick, Laurent and Wild presented lectures on commercial fisheries, tide pools and marine mammals at the National Wildlife Summit Conference at Asilomar, Pacific Grove.

August 2 -Quirolo met with Stan Ludwig, Marine Advisory Extension Service, to discuss northern California rockfish landings.

August 2 & 3 -Ebert, Haseltine, and Kelly toured two groups (approximately 80 people) from the National Wildlife Federation through the Marine Culture Laboratory.

- August 3 -Odemar and Wilson met with Commissioner Fiedley of the Orange County Fish and Game Commission to discuss kelp restoration studies.
- August 5-12 -Gotshall participated in a course for scuba instructors at Asilomar presented by NAUI (National Association of Underwater Instructors).
- August 9 -Kelly toured the 2 national winners of the National Science Foundation grants through the Marine Culture Laboratory.
- August 10 -Haseltine and Kelly met with Fritz Kramer (NMFS), Jim Morgan (NMFS) and Al Petrovich to discuss the progress and objectives of the Marine Culture Laboratory in regard to Bartlett funding, Granite Canyon.
- August 14 -Odemar attended meeting on proposed sport fishing regulations in Sacramento.
- August 18 -Duffy and Moe gave a slide show to the National Spearfishing Championship meet banquet.
- August 19 -Hardy and Moe attended spearfishing meet.
- August 21 -Ebert, Haseltine and Kelly met with Jim Adams (P.G.&E.) and John Warrick (P.G.&E.) to discuss the contract study being conducted on the thermal tolerance limits of red abalone, Granite Canyon.
- August 23 -Ebert, Haseltine and Kelly met with Earl Prentice (NMFS) regarding research on spot prawns, Granite Canyon.
- August 28 -Odemar, Burge and Schultz discussed project activities with John Radovich in Morro Bay.
- August 30 -Burge attended the California Abalone Association meeting and presented a summary of the Department's new abalone research program.

B. Personnel

August 20 -Jose V. Rivera, Janitor, Administration,
Long Beach, appointed.


August 27 -David Bohnert, Tab Machine Operator, Marine
Fisheries Statistics, Long Beach, returned
from leave of absence.

August 30 -Gayle M. Jones, Clerk Typist, Fisheries Resources
Sea Survey, Long Beach, on leave of absence for
maternity.

August 30 -Gary Paoli, Fish and Game Warde, Marine Patrol,
Long Beach, transferred to Eureka.

August 30 -James Russell, Janitor, Administration, Long
Beach, separated.

August 30 -James MacDowell, Fish Culturist, Mariculture
Resources and Development, Granite Canyon,
separated.


Doyle E. Gates
Regional Manager

A. ARREST REPORT

Number of persons arrested as compared to same periods last year:

218	303
Same Month Last Year	Current Month
2,073	2,380
Total Arrests Same Period Last Year	Total Arrests This Year

Remarks - To explain any marked changes in above totals _____

Fines paid.....	\$5,077.00	\$9,434.50
	Same Month Last Year	Current Month
Total fines to date.....	\$69,190.00	\$70,355.50
	Same Period Last Year	Same Period This Year

Remarks - To explain any marked changes in above totals _____

Jail days served.....	2
Jail days suspended.....	93
Cases Dismissed.....	12
Cases in which all of fine was suspended.....	24
Juvenile cases turned over to juvenile authorities or parents contacted.....	
Hunting licenses revoked by court.....	
Hunting licenses suspended by court.....	
Sport fishing licenses revoked by court.....	
Sport fishing licenses suspended by court.....	

Summary: Following is the number of violations prosecuted against type of violation.

Hunting, no license.....	1	Angling; no license.....	160
Waterfowl.....		No inland stamp.....	
Deer.....	2	Trout.....	
Pheasant.....		Striped Bass.....	
Resident small game.....		Other inland fish.....	
Doves and pigeons.....		Angling more than one rod.....	9
Mountain lion.....		Clams and shellfish.....	68
Bear.....		Commercial abalone.....	4
Raptors.....		Commercial lobster.....	
Loaded gun in car.....		Commercial fish.....	7
Baited pond shooting.....		Commercial fish records.....	2
Protected nongame birds, fully protected, rare or end, species	1	Ocean sportfish.....	28
Litter.....	5	Pollution (5650) (Oil).....	3
Public shooting area trespass.		" " (Other).....	1
Trespass (2016-18).....		Stream obstruction (5948).....	
Prohibited species.....		1601-1602.....	
		Miscellaneous.....	12
		TOTAL	303

B. ASSISTANCE TO OTHER LAW ENFORCEMENT AGENCIES

- | | |
|--|-------|
| 1. Number of cases filed by Wildlife Protection officers
for violation of Penal or other code sections..... | 0 |
| 2. Number of cases filed by Wildlife Protection officers
for city or county ordinances..... | 0 |
| 3. Number of cases turned over to federal agencies for filing..... | 0 |
| 4. Number of cases of assistance to other agencies resulting in
filing of charges (not included in 1, 2, or 3 above)..... | 0 |
| 5. Number of cases involving felony charges..... | 0 |
| 6. Section 151 Harbors & Navigation Code _____ | 0 |
| Total Fines Paid | cases |

C. DEER ACCIDENTALLY KILLED

- | | |
|--|---|
| 1. Road kills by motor vehicles | 0 |
| 2. Kills from other causes (railroads, canals, dogs, etc.) | 0 |

D. HUNTER SAFETY REPORT

- | | |
|--|-------|
| 1. Hours spend on Hunter Safety Training..... | _____ |
| 2. Hunter Safety classes attended..... | _____ |
| 3. Hunter Safety instructors contacted..... | _____ |
| 4. Hunter Safety instructor applicants interviewed..... | _____ |
| 5. Hunter safety instructor training classes conducted..... | _____ |
| a. Number of instructors attending..... | _____ |
| 6. Public agencies (law enforcement agencies, recreational
departments or districts, schools, etc.) contacted about
Hunter Safety..... | _____ |
| 7. Private organizations (service clubs, Boy Scouts, sports-
men clubs, etc.) contacted about Hunter Safety..... | _____ |
| *8. Expenses charged to Federal Aid W58H1 during report period... | _____ |
| *9. Mileage charged to Federal Aid W58H1 during report period.... | _____ |
| *Regional Hunter Safety Coordinator Federal Aid W58H1 Employees
only. | |
| 10. Narrative report of highlights in Regional Hunter Safety activities.
(Use space below or additional sheets): | |